EPIDEMIOLOGIC INVESTIGATION SUMMARY

CLOSTRIDIUM DIFFICILE: GASTROINTESTINAL ILLNESS OUTBREAK AMONG PATIENTS OF A HOSPITAL WASHOE COUNTY, NEVADA, 2014

Department of Health and Human Services
Division of Public and Behavioral Health
Office of Public Health Informatics and Epidemiology

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PURPOSE

The purpose of this newsletter is to provide the scientific community, decision makers, healthcare providers, and the public a summary of the outbreak investigations conducted by the Division of Public and Behavioral Health.

BACKGROUND

On Thursday, October 2, 2014, the Division of Public and Behavioral Health (DPBH), Office of Public Health Informatics and Epidemiology (OPHIE) was informed by the Washoe County Health District (WCHD) of confirmed cases of *Clostridium difficile* (*C.diff.)* among patients of Facility "A". The problem was first identified by facility staff on Friday, September 19, 2014 and reported to their local health jurisdiction. Initial symptomology of the ill patients included diarrhea, nausea, and abdominal pain. The State of Nevada epidemiology office was notified on Thursday, October 2, 2014, the outbreak investigation began the same day.

METHODS

Epidemiology

On Thursday, October 2, 2014, DPBH provided recommendations to reduce and prevent the spread of illness in Facility "A," including the submission of outbreak case report forms to OPHIE until further notice, exclusion of symptomatic employees from the facility until 72 hours after symptoms resolved, and laboratory testing to identify the pathological agent(s). Based on the case report forms received from Facility "A," and while still awaiting laboratory confirmation, the outbreak investigation team made an initial determination that the causative agent could possibly be *Clostridium difficile*. This initial determination was based off of prior experience with this pathogen, as well as the CDC's description of the symptomology for *C. diff.*[1]

A **confirmed case** was defined as a patient, staff member, or visitor of Facility "A" who was lab confirmed with *C. diff.* since Friday, September 19, 2014.

A **probable case** was defined as a patient, staff member, or visitor of Facility "A" who was not lab confirmed with *C. diff.* but had diarrhea along with possible other gastrointestinal (GI) illnesses since Friday, September 19, 2014.

A **suspect case** was defined as a patient, staff member, or visitor of Facility "A" who was not lab confirmed with *C. diff.* but anecdotally had diarrhea and (along with possible other GI illnesses) since Friday, September 19, 2014.

Laboratory

Laboratory testing for *C. diff* was done on samples collected from ill patients. Testing was conducted at the facility.

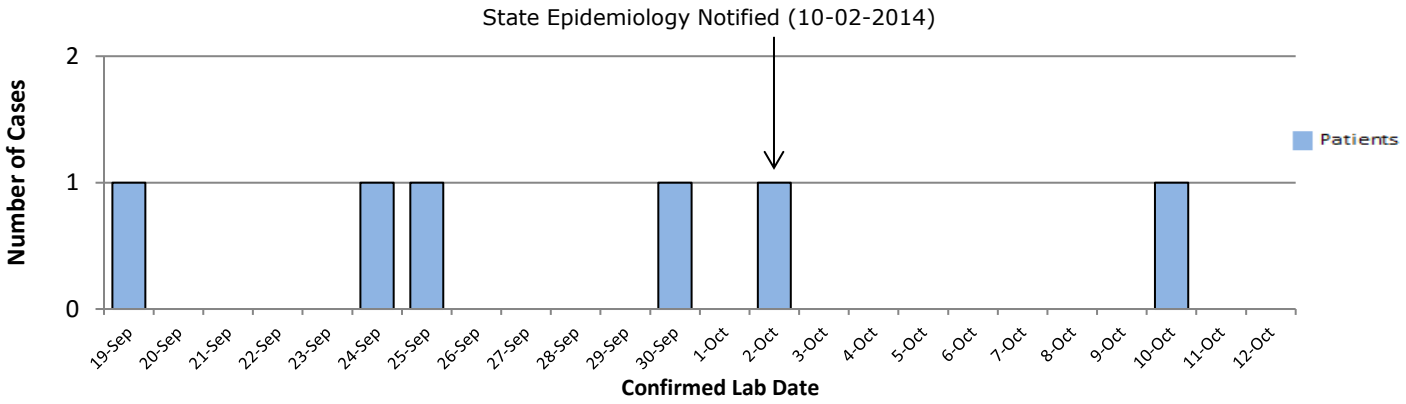

Figure 1. The epidemic curve of C. diff. (n=6) associated with a hospital in Washoe County, Nevada, from September 10 – October 11, 2014

Mitigation

To provide assistance and technical support, the OPHIE Outbreak Response Team disseminated recommendations as per the CDC for the prevention and control of *C. diff*. outbreaks to Facility "A" (see references).

To further prevent the spread of illness, Facility "A" conducted its own prevention measures including: the use of PDI bleach wipes (sporicidal), re-training staff concerning the proper disinfection protocols, the use of signage on alcohol sanitizers indicating "Not for *C. diff."*, patient care staff used soap and water to clean hands instead of alcohol based sanitizers, and patient visitation was restricted for those in isolation.

The facility completed a root cause analysis (RCA) to find the cause of the outbreak and tailor mitigation efforts around that cause.

RESULTS

Epidemiology

A total of 6 confirmed cases were reported. The epidemic curve is presented in Figure 1 and shows the distribution of laboratory confirmation dates. Among the cases, the average age was 56 years old (range 22-86 years) and males comprised 50% of cases.

Symptomatic cases reported diarrhea (100%), abdominal pain (50%), and nausea (17%). There were two deaths during this outbreak; and one was linked to the *C. diff.* infection. The patient attack rate was 3.7%.

Laboratory

Six laboratory samples tested positive for *C. diff.*

Mitigation

After conducting the RCA, a case of *C. diff.* was identified and diagnosed in a patient located in a room adjacent to a known community-onset *C. diff.* toxin positive individual. After this discovery, transmission-based isolation precautions and other risk reduction strategies were put in place.

CONCLUSIONS

A *C. diff.* outbreak occurred among patients at Facility "A", a hospital in Washoe County, Nevada, from Wednesday, September 19 through Saturday, October 10, 2014. Confirmatory test results indicated *C. diff.* was the causative agent.

In total, 6 individuals were classified as cases. Symptoms included diarrhea, abdominal pain, and nausea. Patient attack rate was 3.7%. There were also 2 deaths during this outbreak; one was linked to the *C. diff. infection*.

The outbreak was declared over by Thursday, October 23, 2014 because the facility went two full incubation periods without a new case.

RECOMMENDATIONS

To prevent *C. diff.* outbreaks in healthcare settings, the following public health measures are recommended:

- Use contact precautions for the duration of patient diarrhea.
- Abide by proper use of gloves
- Follow proper hand hygiene that is in compliance with CDC/WHO guidelines
- Clean and disinfect equipment and environment; the use of a bleach solution is most effective
- Educate health care worker, housekeepers, administration staff, patients, and families on *C. diff.*
- Isolate patients with symptoms until a *C. diff.* confirmation is made
- Immediately notify infection control about positive *C. diff.* laboratory results[3]

REFERENCES

1. Centers for Disease Control and Prevention. Healthcare Associated infections (HAIs). *Clostridium difficile* Infection Information for Patients. Last updated February 24, 2015. Retrieved from http://www.cdc.gov/hai/organisms/cdiff/Cdiff-patient.html
2. Cohen SH, Gerding DN, Johnson S, et al. Clinical practice guidelines for *Clostridium difficile* infection in adults: 2010 update by the Society for Healthcare Epidemiology of America (SHEA) and the Infectious Diseases Society of America (IDSA). Infection Control Hospital Epidemiology 2010:31:431-55
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